



Naval Information Warfare Center Pacific (NIWC Pacific) Communications and Networks encompass the emerging environment in networking and computing, which includes the utility components required to establish server-hosting environments, such as large server virtualization environments, distributed processing, as well as data storage and security. Military examples include Consolidated Afloat Network Enterprise Services (CANES) software-defined radios, and the large-scale engineering required to field commodity/commercial computing, network devices, and software in a military shipboard and shore environment. It also includes terrestrial telecommunication services and wireless communication devices and systems.

NIWC Pacific's Unique Communications and Networks Capabilities

- Computing Infrastructure
 - End-to-end test facility including a variety of network configurations
 - Automated Digital Network System (ADNS) test facility
 - Network design system engineering
- Communications infrastructure
 - Satellite communications: Land-based test facility which includes unique protected and wideband satellite test capabilities
 - Network design system engineering
- Optical communications

- Antenna model range
- Radio frequency and optical propagation analysis and test facility
- Joint tactical radio system test and evaluation facilities

Some of NIWC Pacific's current Communications and Networks efforts

- **Consolidated Afloat Network and Enterprise Services (CANES):** The Navy's next-generation tactical afloat network provides a common computing environment, which includes an adaptable information technology platform that can rapidly meet changing warfighting requirements.
- **Automated Digital Network System (ADNS):** ADNS supplies the tactical wide area network (WAN) component of the naval communications system, providing surface, ship, submarine, airborne, tactical-shore, and shore-based WAN gateway services management. ADNS Increment III increases network capacity by adding the ability to utilize higher bandwidth available with newer satellite communication systems.
- **Enhanced Polar Satellite System Gateway (EPSSGW):** EPSSGW will provide continuous coverage in the polar region for secure, jam-resistant, strategic, and tactical communications to support peacetime, contingency, homeland defense, humanitarian assistance, and wartime operations. The system consists of two extremely high frequency (EHF) communications payloads hosted on satellites operating in highly elliptical

orbits, and the EPSGW, which connects the EPSGW ground station with other communication systems and the Global Information Grid.

- **Mobile User Objective System (MUOS):** MUOS is a narrow-band military communications satellite system that supports a worldwide, multi-service population of users in the ultra-high frequency band. The system provides increased communications capabilities to newer, smaller terminals while still supporting interoperability with legacy terminals. MUOS is designed to support users that require greater mobility, higher bit rates, and improved operational availability.
- **Outside the Contiguous U.S. (OCONUS) Navy Enterprise Network (ONE-Net) and Next Generation Enterprise Network (NGEN):** These Navy networks deliver comprehensive, end-to-end information and telecommunication services to Navy shore commands using a common computing environment. The networks represent continuous evolution of the Department of the Navy enterprise networks to provide secure, net-centric data and services to Navy and Marine Corps personnel.

With the Warfighter

- **Networking on the Move (NOTM):** NOTM enables maneuvering units to collaborate, access tactical database/information resources and execute digital orders. In response to an urgent needs statement, NIWC Pacific personnel working with the Office of Naval Research, Marine Corps Systems Command, and SSC Atlantic can rapidly integrate and field several units in support of combat operations.

The units provide robust, beyond line-of-sight (BLOS) command and control (C2) capability with the added ability to view full motion video integrated onto tactical vehicular platforms and are fielded to all elements across the Marine Air-Ground Task Force (MAGTF). The units are connected via wideband satellite communications and tactical radio data networks so that the system provides commanders and staff with mobile, remote access to networks available in rear Combat Operations Centers while at the halt or on the move.

The units have been developed and integrated and continue to evolve based on feedback from the users and operators, so that the systems are responsive to their needs and requirements.

As stated by our Marine Corps Systems Command sponsor: "The performance of ... the NIWC Pacific team is well above any reasonable expectation ... possess technical expertise in the areas of on-the-move SATCOM, digital networking and engineering management that is light years ahead of all other warfare centers ... leadership, skill, and hard work have been ABSOLUTELY CRUCIAL to the Marine Corps' program ... the impact of NOTM on Marine Corps warfighting capability and combat readiness cannot be overstated. NOTM is now considered by Marine leaders at every command echelon to be the very underpinning of the way we execute maneuver warfare."

For more information
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NIWC Pacific is developing Jungle and Urban Non-GPS Orientation (JUNO) for the dismounted infantry Marine or Soldier to provide a hands-free navigation aid that does not rely on GPS. Utilizing today's commercial technology, the Battlefield Objective Navigation Display (BOND) plots and identifies friendly forces, tactical control measures, and enemy threats on a user-centered map, thereby enhancing command and control and execution of combat operations in jungle and urban environments.



ONE-NET: Navy networks deliver comprehensive, end-to-end information and telecommunication services to Navy shore commands using a common computing environment.



A Network Integration and Engineering Facility (NIEF) is filled with Consolidated Afloat Ships Network Enterprise Services (CANES) modules being operationally tested prior to Fleet delivery.

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